

WHAT IS CLAIMED IS:

1. A power module comprising:

a heat radiating member including a circuit arrangement

5 surface having a circuit arrangement region;

a power circuit section including at least one electronic part and arranged in the circuit arrangement region;

a wall member surrounding the circuit arrangement region;

and

10 a resin layer disposed in a space defined by the wall member and the heat radiating member, wherein:

the electronic part has a plurality of leg portions; and

the resin layer seals at least the leg portions.

15 2. The power module according to claim 1, further comprising:

a seal member surrounding the circuit arrangement region, wherein:

the wall member defines a first groove to which the seal

20 member is fitted; and

the seal member is interposed between the wall member and the heat radiating member.

3. The power module according to claim 1, wherein:

25 the power circuit section includes at least one bus bar;

the wall member includes a hood; and  
an end portion of the bus bar is inserted into the hood.

4. The power module according to claim 3, wherein:  
5 the wall member further includes a through hole  
communicating a side of the heat radiating member and a side  
of the hood; and  
a part of the bus bar passes through the through hole.

10 5. The power module according to claim 4, wherein:  
the wall member further includes:  
a recess portion; and  
another through hole communicating the side of  
the heat radiating member and the recess portion.

15 6. The power module according to claim 3, wherein:  
the bus bar has:  
a first portion extending in parallel with the  
circuit arrangement surface; and  
20 a second portion standing up from the circuit  
arrangement surface and inserted into the hood.

25 7. The power module according to claim 3, wherein:  
the wall member defines a second groove;  
the bus bar has:

a first portion extending in parallel with the circuit arrangement surface;

                  a second portion standing up from the circuit arrangement surface; and

5                  a third portion extending through the second groove.

8.      The power module according to claim 3, wherein the bus bar protrudes from at least one of side edges of the power 10 circuit section in outward directions.

9.      The power module according to claim 1, further comprising:

15      an insulating layer disposed between the heat radiating member and the power circuit section..

10.     The power module according to claim 9, wherein the insulating layer is thermally connected with the heat radiating member and the power circuit section.

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11.     The power module according to claim 1, further comprising:

      a lid attached to the wall member to cover the power circuit section.

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12. The power module according to claim 1, further comprising a bus bar constitution plate including a plurality of bus bars, wherein:

the electronic part is electrically connected to the power circuit section and at least one of the bus bars.

5 13. A method for waterproofing a power circuit section, comprising:

arranging the power circuit section including at least 10 one electronic part having a plurality of leg portions in a circuit arrangement region on a circuit arrangement surface of a heat radiating member;

15 attaching a wall member, which is made of an insulating material and includes a seal member at an end surface on a side of the heat radiating member, to the heat radiating member in a state where the wall member surrounds the circuit arrangement region and the seal member is closely contacted with the circuit arrangement surface;

20 pouring a liquid resin into a space surrounded by the wall member and the heat radiating member until at least the leg portions of the electronic part are sealed; and

curing the resin to form a waterproof layer.

14. The method according to claim 13, wherein:

25 the wall member includes a groove on the side of the heat

radiating member; and

in the attaching step, the wall member is attached to the heat radiating member after the seal member is attached to the groove.

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15. The method according to claim 14, wherein the seal member is a foam rubber.

10 16. The method according to claim 13, wherein the resin is a silicone resin.

17. The method according to claim 13, further comprising:

15 attaching a lid to an opening portion of the wall member to cover the opening portion, wherein the opening portion is formed on an opposite side of the wall member to the heat radiating member.

20 18. The method according to claim 13, wherein: the power circuit section includes:

a bus bar constitution plate on which a plurality of bus bars are arranged in a predetermined pattern; an electronic part disposed on the bus bar constitution plate; and

25 a control circuit board for controlling a switching

operation of the electronic part, the control circuit board bonded to one surface of the bus bar constitution plate;

the electronic part is mounted to the bus bar constitution 5 plate and the control circuit board; and

in the pouring step, the resin is poured until the bus bar constitution plate and the control circuit board are sealed.

19. A method for waterproofing a power circuit section, 10 comprising:

fitting a seal member into a groove portion of a cylindrical wall member tightly;

attaching the power circuit section to the wall member;

coating an adhesive agent on a circuit arrangement region 15 of a heat radiating member;

attaching the heat radiating member to the wall member so that the wall member surrounds the circuit arrangement region and the seal member closely contacts with the heat radiating member, to attach the power circuit section to the circuit 20 arrangement region;

pouring a liquid resin into a space defined by the heat radiating member and the wall member; and

curing the resin to form a waterproof layer.

25 20. The method according to claim 19, further

comprising:

attaching a lid to an opening portion of the wall member  
to cover the opening portion, wherein the opening portion is  
formed on an opposite side of the wall member to the heat radiating  
5 member.